What is claimed is :

1. A nitride based semiconductor photo-luminescent device having an active layer, said active layer having both at least a high dislocation density region and at least a low dislocation density region lower in dislocation density than said high dislocation density region,

wherein said low dislocation density region includes a current injection region into which a current is injected, and said active layer is less than 1×10^{18} m^{-3} in impurity concentration.

2. The nitride based semiconductor photo-luminescent device as claimed in claim 1, wherein a dislocation density of the low dislocation density region is not more than one tenth of a dislocation density of the high dislocation density region.

3. The nitride based semiconductor photo-luminescent device as claimed in claim 1, wherein a dislocation density of the current injection region is not more than one tenth of an averaged dislocation density of the active layer.

4. The nitride based semiconductor photo-luminescent device as claimed in claim 1, wherein a dislocation density of at least a part of the high dislocation density region is not less than 1×10^{12} m^{-2}, and an average dislocation density of the current injection region in the low

dislocation density region is less than 1×10^{11} m^{-2}.

5. The nitride based semiconductor photo-luminescent device as claimed in claim 1, wherein an average dislocation density of the active layer is not less than 1×10^{12} m^{-2}, and an average dislocation density of the current injection region in the low dislocation density region is less than 1×10^{11} m^{-2}.

6. The nitride based semiconductor photo-luminescent device as claimed in claim 1, wherein an average dislocation density of the current injection region is less than 1×10^{11} m^{-2}, and an average dislocation density of a peripheral region within a distance of 5 micrometers from the current injection region in the low dislocation density region is not less than 1×10^{12} m^{-2}.

7. The nitride based semiconductor photo-luminescent device as claimed in claim 1, wherein a current injection electrode is provided over an upper semiconductor layer overlying the active layer, and the active layer has an under-positioned region which is positioned under the current injection electrode, and an average dislocation density of the under-positioned region of the active layer is less than 1×10^{11} m^{-2}, and an average dislocation density of a peripheral region within a distance of 5 micrometers from the under-positioned region is not less than 1×10^{12} m^{-2}.

8. The nitride based semiconductor photo-luminescent device as claimed in claim 1, wherein an average dislocation density of a peripheral region within a distance of 5 micrometers from the current injection region in the low dislocation density region is not more than one tenth of an average dislocation density of the current injection region.

9. The nitride based semiconductor photo-luminescent device as claimed in claim 1, wherein a current injection electrode is provided over an upper semiconductor layer overlying the active layer, and the active layer has an under-positioned region which is positioned under the current injection electrode, and an average dislocation density of the under-positioned region of the active layer is not more than one tenth of an average dislocation density of an average dislocation density of a peripheral region within a distance of 5 micrometers from the under-positioned region.

10. The nitride based semiconductor photo-luminescent device as claimed in claim 1, wherein a higher dislocation density region having a dislocation density of not less than ten times of a dislocation density of the current injection region is present in a peripheral region within a distance of 5 micrometers from the current injection region.

Subh2 11. The nitride based semiconductor photo-luminescent device as claimed in claim 1, wherein said nitride based semiconductor photo-

luminescent device is provided over dielectric mask patterns provided on a gallium nitride top surface of an epitaxial lateral overgrowth substrate.

12. The nitride based semiconductor photo-luminescent device as claimed in claim 11, wherein said dielectric mask patterns have a mask width of not less than 25 micrometers.

13. The nitride based semiconductor photo-luminescent device as claimed in claim 11, wherein said dielectric mask patterns comprise single-layered dielectric mask patterns.

14. The nitride based semiconductor photo-luminescent device as claimed in claim 11, wherein said dielectric mask patterns comprise dielectric multilayer reflective mirrors.

15. The nitride based semiconductor photo-luminescent device as claimed in claim 1, wherein said nitride based semiconductor photo-luminescent device is provided over selectively provided gallium nitride layers over a semi-insulating substrate of a mask-less epitaxial lateral overgrowth substrate.

16. The nitride based semiconductor photo-luminescent device as claimed in claim 15, wherein said selectively provided gallium nitride layers have at least a window region having a window width of not less

than 25 micrometers.

17. The nitride based semiconductor photo-luminescent device as claimed in claim 1, wherein said active layer is undoped.

18. The nitride based semiconductor photo-luminescent device as claimed in claim 1, wherein said active layer comprises a multiple quantum well structure comprising alternating laminations of undoped quantum well layers and undoped potential barrier layers.

19. The nitride based semiconductor photo-luminescent device as claimed in claim 1, wherein said active layer comprises a multiple quantum well structure comprising alternating laminations of undoped quantum well layers and Si-doped potential barrier layers having an impurity concentration of less than 1×10^{18} m^{-3}.

20. The nitride based semiconductor photo-luminescent device as claimed in claim 1, wherein said active layer comprises a multiple quantum well structure comprising alternating laminations of Si-doped quantum well layers having an impurity concentration of less than 1×10^{18} m^{-3} and undoped potential barrier layers.

21. The nitride based semiconductor photo-luminescent device as claimed in claim 1, wherein said active layer comprises a multiple quantum

well structure comprising alternating laminations of Si-doped quantum well layers having an impurity concentration of less than 1×10^{18} m^{-3} and Si-doped potential barrier layers having an impurity concentration of less than 1×10^{18} m^{-3}.

22. A nitride based semiconductor photo-luminescent device having an active layer over an epitaxial lateral overgrowth substrate having a dielectric mask pattern with a window region, said active layer having both at least a high dislocation density region positioned over said window region and at least a low dislocation density region positioned over said dielectric mask pattern, and said low dislocation density region being lower in dislocation density than said high dislocation density region,

wherein said low dislocation density region includes a current injection region into which a current is injected, and said active layer is less than 1×10^{18} m^{-3} in impurity concentration.

23. The nitride based semiconductor photo-luminescent device as claimed in claim 22, wherein a dislocation density of the low dislocation density region is not more than one tenth of a dislocation density of the high dislocation density region.

24. The nitride based semiconductor photo-luminescent device as claimed in claim 22, wherein a dislocation density of the current injection region is not more than one tenth of an averaged dislocation density of the

active layer.

25. The nitride based semiconductor photo-luminescent device as claimed in claim 22, wherein a dislocation density of at least a part of the high dislocation density region is not less than 1×10^{12} m^{-2}, and an average dislocation density of the current injection region in the low dislocation density region is less than 1×10^{11} m^{-2}.

26. The nitride based semiconductor photo-luminescent device as claimed in claim 22, wherein an average dislocation density of the active layer is not less than 1×10^{12} m^{-2}, and an average dislocation density of the current injection region in the low dislocation density region is less than 1×10^{11} m^{-2}.

27. The nitride based semiconductor photo-luminescent device as claimed in claim 22, wherein an average dislocation density of the current injection region is less than 1×10^{11} m^{-2}, and an average dislocation density of a peripheral region within a distance of 5 micrometers from the current injection region in the low dislocation density region is not less than 1×10^{12} m^{-2}.

28. The nitride based semiconductor photo-luminescent device as claimed in claim 22, wherein a current injection electrode is provided over an upper semiconductor layer overlying the active layer, and the active

layer has an under-positioned region which is positioned under the current injection electrode, and an average dislocation density of the under-positioned region of the active layer is less than 1×10^{11} m^{-2}, and an average dislocation density of a peripheral region within a distance of 5 micrometers from the under-positioned region is not less than 1×10^{12} m^{-2}.

29. The nitride based semiconductor photo-luminescent device as claimed in claim 22, wherein an average dislocation density of a peripheral region within a distance of 5 micrometers from the current injection region in the low dislocation density region is not more than one tenth of an average dislocation density of the current injection region.

30. The nitride based semiconductor photo-luminescent device as claimed in claim 22, wherein a current injection electrode is provided over an upper semiconductor layer overlying the active layer, and the active layer has an under-positioned region which is positioned under the current injection electrode, and an average dislocation density of the under-positioned region of the active layer is not more than one tenth of an average dislocation density of an average dislocation density of a peripheral region within a distance of 5 micrometers from the under-positioned region.

31. The nitride based semiconductor photo-luminescent device as claimed in claim 22, wherein a higher dislocation density region having a

dislocation density of not less than ten times of a dislocation density of the current injection region is present in a peripheral region within a distance of 5 micrometers from the current injection region.

32. The nitride based semiconductor photo-luminescent device as claimed in claim 22, wherein said dielectric mask patterns have a mask width of not less than 25 micrometers.

33. The nitride based semiconductor photo-luminescent device as claimed in claim 22, wherein said dielectric mask patterns comprise single-layered dielectric mask patterns.

34. The nitride based semiconductor photo-luminescent device as claimed in claim 22, wherein said dielectric mask patterns comprise dielectric multilayer reflective mirrors.

35. The nitride based semiconductor photo-luminescent device as claimed in claim 22, wherein said active layer is undoped.

36. The nitride based semiconductor photo-luminescent device as claimed in claim 22, wherein said active layer comprises a multiple quantum well structure comprising alternating laminations of undoped quantum well layers and undoped potential barrier layers.

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37. The nitride based semiconductor photo-luminescent device as claimed in claim 22, wherein said active layer comprises a multiple quantum well structure comprising alternating laminations of undoped quantum well layers and Si-doped potential barrier layers having an impurity concentration of less than 1×10^{18} m^{-3}.

38. The nitride based semiconductor photo-luminescent device as claimed in claim 22, wherein said active layer comprises a multiple quantum well structure comprising alternating laminations of Si-doped quantum well layers having an impurity concentration of less than 1×10^{18} m^{-3} and undoped potential barrier layers.

39. The nitride based semiconductor photo-luminescent device as claimed in claim 22, wherein said active layer comprises a multiple quantum well structure comprising alternating laminations of Si-doped quantum well layers having an impurity concentration of less than 1×10^{18} m^{-3} and Si-doped potential barrier layers having an impurity concentration of less than 1×10^{18} m^{-3}.

40. A nitride based semiconductor photo-luminescent device having an active layer over a mask-less epitaxial lateral overgrowth substrate having a stripe-shaped nitride based semiconductor pattern with a window region, said active layer having both at least a high dislocation density region positioned over said stripe-shaped nitride based semiconductor

pattern and at least a low dislocation density region positioned over said window region, and said low dislocation density region being lower in dislocation density than said high dislocation density region,

wherein said low dislocation density region includes a current injection region into which a current is injected, and said active layer is less than 1×10^{18} m^{-3} in impurity concentration.

41. The nitride based semiconductor photo-luminescent device as claimed in claim 40, wherein a dislocation density of the low dislocation density region is not more than one tenth of a dislocation density of the high dislocation density region.

42. The nitride based semiconductor photo-luminescent device as claimed in claim 40, wherein a dislocation density of the current injection region is not more than one tenth of an averaged dislocation density of the active layer.

43. The nitride based semiconductor photo-luminescent device as claimed in claim 40, wherein a dislocation density of at least a part of the high dislocation density region is not less than 1×10^{12} m^{-2}, and an average dislocation density of the current injection region in the low dislocation density region is less than 1×10^{11} m^{-2}.

44. The nitride based semiconductor photo-luminescent device as

claimed in claim 40, wherein an average dislocation density of the active layer is not less than 1×10^{12} m^{-2}, and an average dislocation density of the current injection region in the low dislocation density region is less than 1×10^{11} m^{-2}.

45. The nitride based semiconductor photo-luminescent device as claimed in claim 40, wherein an average dislocation density of the current injection region is less than 1×10^{11} m^{-2}, and an average dislocation density of a peripheral region within a distance of 5 micrometers from the current injection region in the low dislocation density region is not less than 1×10^{12} m^{-2}.

46. The nitride based semiconductor photo-luminescent device as claimed in claim 40, wherein a current injection electrode is provided over an upper semiconductor layer overlying the active layer, and the active layer has an under-positioned region which is positioned under the current injection electrode, and an average dislocation density of the under-positioned region of the active layer is less than 1×10^{11} m^{-2}, and an average dislocation density of a peripheral region within a distance of 5 micrometers from the under-positioned region is not less than 1×10^{12} m^{-2}.

47. The nitride based semiconductor photo-luminescent device as claimed in claim 40, wherein an average dislocation density of a peripheral region within a distance of 5 micrometers from the current injection region

in the low dislocation density region is not more than one tenth of an average dislocation density of the current injection region.

48. The nitride based semiconductor photo-luminescent device as claimed in claim 40, wherein a current injection electrode is provided over an upper semiconductor layer overlying the active layer, and the active layer has an under-positioned region which is positioned under the current injection electrode, and an average dislocation density of the under-positioned region of the active layer is not more than one tenth of an average dislocation density of an average dislocation density of a peripheral region within a distance of 5 micrometers from the under-positioned region.

49. The nitride based semiconductor photo-luminescent device as claimed in claim 40, wherein a higher dislocation density region having a dislocation density of not less than ten times of a dislocation density of the current injection region is present in a peripheral region within a distance of 5 micrometers from the current injection region.

50. The nitride based semiconductor photo-luminescent device as claimed in claim 40, wherein said window region has a width of not less than 25 micrometers.

51. The nitride based semiconductor photo-luminescent device as

claimed in claim 40, wherein said active layer is undoped.

52. The nitride based semiconductor photo-luminescent device as claimed in claim 40, wherein said active layer comprises a multiple quantum well structure comprising alternating laminations of undoped quantum well layers and undoped potential barrier layers.

53. The nitride based semiconductor photo-luminescent device as claimed in claim 40, wherein said active layer comprises a multiple quantum well structure comprising alternating laminations of undoped quantum well layers and Si-doped potential barrier layers having an impurity concentration of less than 1×10^{18} m^{-3}.

54. The nitride based semiconductor photo-luminescent device as claimed in claim 40, wherein said active layer comprises a multiple quantum well structure comprising alternating laminations of Si-doped quantum well layers having an impurity concentration of less than 1×10^{18} m^{-3} and undoped potential barrier layers.

55. The nitride based semiconductor photo-luminescent device as claimed in claim 40, wherein said active layer comprises a multiple quantum well structure comprising alternating laminations of Si-doped quantum well layers having an impurity concentration of less than 1×10^{18} m^{-3} and Si-doped potential barrier layers having an impurity concentration

of less than 1×10^{18} m^{-3}.